Psychopathy and the Predictive Validity of the PCL-R: An International Perspective

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Its controversial past notwithstanding, psychopathy has emerged as one of the most important clinical constructs in the criminal justice and mental health systems. One reason for the surge in theoretical and applied interest in the disorder is the development and widespread adoption of reliable and valid methods for its measurement. The Hare PCL-R provides researchers and clinicians with a common metric for the assessment of psychopathy, and has led to a surge in replicable and meaningful findings relevant to the issue of risk for recidivism and violence, among other things. Most of the research thus far has been based on North American samples of offenders and forensic psychiatric patients. We summarize this research and compare it with findings from several other countries, including England and Sweden. We conclude that the ability of the PCL-R to predict recidivism, violence, and treatment outcome has considerable cross-cultural generalizability, and that the PCL-R and its derivatives play a major role in the understanding and prediction of crime and violence. Copyright © 2000 John Wiley & Sons, Ltd.

Theoretical and applied interest in the clinical construct of psychopathy has increased dramatically in recent years, a reflection in part of the development and widespread adoption of reliable and valid methods for its assessment, including the *Hare Psychopathy Checklist—Revised* (PCL-R; Hare, 1991). The *Twelfth Mental Measurements Yearbook* described the PCL-R as "the state of the art ... both clinically and in research use" (Fulero, 1995, p. 454). It provides researchers and clinicians with a common metric for the assessment of psychopathy, thereby facilitating international and cross-cultural communication concerning theory and

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research, as well as attempts to replicate and compare empirical findings. The results include a new appreciation of the central role played by psychopathy in understanding and predicting antisocial and violent behavior (e.g., Hare, Cooke, & Hart, 1999; Hemphill, Hare, & Wong, 1998; Millon, Simonsen, Birket-Smith, & Davis, 1998; Salekin, Rogers, & Sewell, 1996), as well as advances in our understanding of the cognitive and neurobiological correlates of the disorder.

In this paper we focus on some evidence for the cross-cultural predictive validity of the construct of psychopathy, as measured by the PCL-R and its derivatives (see below). The outcome data consist of institutional infractions, recidivism, violence, and response to treatment. Most of the relevant published literature is based on Canadian and American samples of offenders and forensic psychiatric patients, but there is an increasing number of studies in other countries, including the United Kingdom, Sweden, Denmark, Norway, Belgium, Spain, and Portugal. In some cases, the samples are still too small to formulate reliable conclusions, and in these cases only brief descriptions are provided here. The main focus is on unpublished data collected by Her Majesty's Prison Service in England, and on a summary of recent findings in Sweden. We do not include the growing cross-cultural literature on the construct validity of the PCL-R, based largely on the use of theories and techniques adopted from cognitive/affective neuroscience (e.g., see Blair, Jones, Clark, & Smith, 1997; Hare, 1998a; Kiehl, Hare, McDonald, & Brink, 1999; Lapierre, Braun, & Hodgins, 1995; Larbig, Veit, Rau, Schlottke, & Birbaumer, 1992; Newman, 1998; Patrick, 1994; Patrick & Zempolich, 1998; Pham, Philipot, & Rimé, 2000).

THE CONSTRUCT OF PSYCHOPATHY

The modern conception of psychopathy is the result of several hundred years of clinical investigation and speculation by European and American psychiatrists and psychologists (see detailed accounts by Berrios, 1996; Millon *et al.*, 1998; McCord & McCord, 1964; Pichot, 1978). As Millon *et al.* (1998) put it, ''Psychopathy was the first personality disorder to be recognized in psychiatry. The concept has a long historical and clinical tradition, and in the last decade a growing body of research has supported its validity ...'' (p. 28).

The etiology, dynamics, and conceptual boundaries of this personality disorder remain the subject of debate and research, but there is a consistent clinical and empirical tradition concerning its core interpersonal, affective, and behavioral attributes (Berrios, 1996; Cleckley, 1976; Hare, 1991; Millon *et al.*, 1998; Pichot, 1978). The PCL-R was designed to measure these attributes. On the interpersonal level, individuals with this disorder typically present as grandiose, arrogant, callous, dominant, superficial, deceptive, and manipulative. Affectively, they are short-tempered, unable to form strong emotional bonds with others, and lacking in empathy, guilt, remorse, or deep-seated emotions. These interpersonal and affective features are associated with a socially deviant lifestyle that includes irresponsible and impulsive behavior, and a tendency to ignore or violate social conventions and morals (Hare, 1991). Although not all psychopaths come into formal contact with the criminal justice system (see Babiak, 1995; Hare, 1998c), their

defining features clearly place them at high risk for crime and violence (Hare, 1999).

The PCL-R and Its Derivatives

Extensive descriptions of the development and psychometric properties of the PCL-R and its derivatives are available elsewhere (Cooke & Michie, 1997; Cooke, Michie, Hart, & Hare, 1999; Forth, Kosson, & Hare, in press; Hare, 1991; Hare, Hart, Forth, Harpur, & Williamson, 1998; Hart, Cox, & Hare, 1995) and only a brief outline is provided here.

The PCL-R is a clinical construct rating scale that uses a semi-structured interview, case-history information, and specific scoring criteria to rate each of 20 items on a three-point scale $(0, 1, 2)$ according to the extent to which it applies to a given individual. Total scores can range from 0 to 40 and reflect an estimate of the degree to which the individual matches the prototypical psychopath. The *PCL-R Manual* (Hare, 1991) lists the mean score for North American prison samples and for forensic psychiatric samples as 23.6 (SD = 7.9) and 20.6 (SD = 7.8), respectively. Similar scores have been obtained in a large number of more recent analyses. However, in some countries (e.g., England, Scotland, Sweden) the mean score appears to be several points lower than in North America (see Cooke, 1998). This has implications for the cutoff used for research or forensic diagnoses of psychopathy, which typically is 30 in North America. For example, Cooke and Michie (1999a; personal communication, 22 May, 2000) used item response theory (IRT) analyses to show that a PCL-R score of 25 in Scotland and England appears to reflect the same level of the latent trait of psychopathy as does a score of 30 in North America. Similarly, a cutoff of 26 has proven useful for predictive purposes in Sweden (see below).

For risk assessments clinicians and researchers should take into account the sensitivity (the true positive rate) and specificity (1 minus the false positive rate) of the PCL-R for the particular population of offenders or patients for whom predictions are to be made. The use of receiver operating characteristic (ROC) analyses, which plot sensitivity against specificity as a function of cutoff scores, can help to determine the optimal PCL-R cutoff for a particular purpose (see Mossman, 1994; Quinsey, Harris, Rice, & Cormier, 1998, pp. 50–53).

Total PCL-R scores are highly reliable when used with trained and experienced raters. Scores of published studies in a variety of countries have obtained intraclass correlations (ICCs) that typically exceed .80 for a single rater (ICC_1) and .90 for the average of two raters (ICC_2). Internal consistency (alpha coefficients of .80+ and mean inter-item correlations of .22+) is also high.

Although developed primarily with data from male offenders and forensic patients, the psychometric properties of the PCL-R now are well established in a variety of other offender and patient populations, including females, substance abusers, and sex offenders (e.g., Brown & Forth, 1997; Cooke, Forth, & Hare, 1998; Hare 1998b; Harris, Rice, & Quinsey, 1998; McDermott *et al.*, 2000; Porter *et al.*, 2000; Salekin, Rogers, & Sewell, 1997; Salekin, Rogers, Ustad, & Sewell, 1998; Windle & Dumenci, 1999). Early indications are that the PCL-R has good cross-cultural generalizability (e.g., Cooke, 1998; Gonçalves, 1999; Grann,

Långström, Tengström, & Stålenheim, 1998; Moltó, Poy, & Torrubia, 2000; Pham, 1998).

Derivatives of the PCL-R include the *Hare Psychopathy Checklist: Screening Version* (PCL:SV; Hart *et al.*, 1995) and the *Hare Psychopathy Checklist: Youth Version* (PCL:YV; Forth *et al.*, in press). The 12-item PCL:SV was developed for use in the MacArthur Risk Assessment study (Hart, Hare, & Forth, 1994; Steadman *et al.*, 1994). It is conceptually and empirically related to the PCL-R (Cooke *et al.*, 1999; Hart *et al.*, 1995) and is used as a screen for psychopathy in forensic populations or as a stand-alone instrument for research with noncriminals, including civil psychiatric patients (as in the MacArthur study). There is rapidly accumulating evidence for the reliability and construct validity of the PCL:SV, including its ability to predict aggression and violence in offenders and in both forensic and civil psychiatric patients (see below).

The PCL:YV is an age-appropriate modification of the PCL-R intended for use with adolescents. It appears to have the same psychometric and predictive properties as its adult counterpart (see e.g., Brandt, Kennedy, Patrick, & Curtin, 1997; Cruise, Rogers, Neumann, & Sewell, 2000; Forth & Burke, 1998; Forth, Hart, & Hare, 1990; Gretton, McBride, O'Shaughnessy, & Hare, manuscript in preparation; Gretton, McBride, Hare, O'Shaughnessy, & Kumka, in press; Toupin, Mercier, Déry, Côté, & Hodgins, 1996).

There is extensive empirical literature indicating that in forensic populations the items in the PCL-R and PCL:SV measure a unitary construct typically formed by two correlated clusters or factors (e.g., Cooke & Michie, 1999a; Hare, 1991; Harpur, Hare, & Hakstian, 1989; McDermott *et al.*, 2000; Windle & Dumenci, 1999). Factor 1 reflects the interpersonal and affective components of the disorder, whereas Factor 2 is more closely allied with a socially deviant lifestyle. Cooke and his colleagues have used *item response theory* (IRT), also known as *latent trait theory*, to investigate the discriminating properties of individual PCL-R and PCL:SV items. IRT provides information about the extent to which an item (or group of items) is discriminating of (relevant to) a given construct or trait, in this case, psychopathy. They found that the interpersonal and affective (Factor 1) items are more discriminating of the psychopathy construct than are the socially deviant (Factor 2) items (Cooke & Michie, 1997; Cooke *et al.*, 1999).[1]

The attributes measured by the PCL-R are similar in many respects to the diagnostic criteria for dyssocial personality disorder listed in the tenth revision of the International Classification of Diseases and Related Disorders (ICD-10; World Health Organization, 1990). However, they differ in important ways from the criteria for antisocial personality disorder (APD) contained in the American Psy-

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[1] On the basis of some recent IRT analyses of North American and European data sets, Cooke and Michie (1999b) found that the 13 most discriminating PCL-R items defined a superordinate construct (psychopathy) made up of three correlated clusters or factors: interpersonal (four items), affective (four items), and lifestyle (five items). The first two factors represent a split of PCL-R Factor 1 into two parts, while the third factor is derived from PCL-R Factor 2. The remaining seven items primarily reflect antisocial and criminal behaviors, and may be less useful in assessing psychopathy in populations that are relatively homogeneous with respect to criminality. This three-factor solution is theoretically and clinically appealing, and is consistent with the *PCL-R Manual's* (Hare, 1991) breakdown of the attributes of psychopathy into interpersonal, affective, and behavioral/lifestyle components, as well as with the format and content of the Hare P-Scan (Hare & Hervé, 1999), a non-clinical tool for use by law enforcement, probations, and corrections.

chiatric Association's (1994) fourth revision of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV).[2] Extensive discussions of this issue are available elsewhere (e.g., Hare & Hart, 1995; Rogers *et al.*, 2000; Widiger *et al.*, 1996).

PREDICTIVE VALIDITY: NORTH AMERICA

Most of the findings on the predictive validity of the PCL-R and its derivatives are from samples of North American offenders and patients and have been described in detail in various reviews and publications (e.g., see Hare, 1998b, 1999; Hemphill *et al.*, 1998; Salekin *et al.*, 1996). Only a very brief summary of findings is presented here, primarily as a framework for comparing the more detailed accounts of recent work with large samples in England and Sweden, presented below.

Because psychopathy is one of the most generalizable of the risk factors for recidivism and violence, either the PCL-R or the PCL:SV is included in several of the more prominent risk assessment tools, including those that are purely actuarial or empirically derived, such as the *Violent Risk Appraisal Guide* (VRAG; Quinsey *et al.*, 1998), and those that include structured clinical judgments, such as the *HCR-20: Assessing Risk for Violence*, Version 2 (Webster, Douglas, Eaves, & Hart, 1997), which assesses ten historical (H) variables, five clinical (C) variables, and five risk management (R) variables. The use of these instruments is consistent with the position that proper appraisal of risk requires the collection and integration of many potential risk factors, not least of which is psychopathy. As Hart (1998, pp. 368–369) has put it, psychopathy "... should be considered in any assessment of violence. It is empirically related to future violence, is theoretically important in the explanation of violence, and is pragmatically relevant in making decisions about risk management. ... Indeed, failure to consider psychopathy when conducting a risk assessment may be unreasonable (from a legal perspective) or unethical (from a professional perspective)."

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[2] In forensic populations the prevalence of APD diagnoses is much higher ($>50\%$) than the prevalence of PCL-R diagnoses of psychopathy ($<30\%$), resulting in an asymmetric association between the PCL-R and APD (Hare & Hart, 1995). In this respect, it is noteworthy that APD diagnoses are strongly correlated with PCL-R Factor 2 items, but only weakly correlated with Factor 1 items. Most psychopaths meet the criteria for APD, but most of the offenders with APD are not psychopaths. That is, APD is only weakly related to the PCL-R items that are most discriminating of the construct of psychopathy (Cooke & Michie, 1997). Yet, as DSM-IV puts it, APD "has also been referred to as psychopathy ..." (p. 645), effectively equating two different constructs. However, the PCL-R and its derivatives do *not* measure the same construct as does APD. As Rogers *et al.* (2000) noted, 'DSM-IV does considerable disservice to diagnostic clarity in its equating of APD to psychopathy" (pp. 236–237).

Recently, Quinsey *et al.* (1998) stated that when the APD items are summed to provide a continuous score (symptom counts, rather than a categorical diagnosis) the correlation with PCL-R Total scores is "in the .90s, indicating that the PCL-R and APD measure the same underlying construct, but that the dichotomous manner in which the APD diagnosis is arrived at wastes information" (p. 83). However, raters scored both the PCL-R and the APD items from the same archival file information (no interviews), leaving open the possibility that the results were contaminated. Quite a different picture emerges when the PCL-R and the APD items each are scored, independently, by different sets of raters, from both file and interview data. Under these circumstances, the PCL-R correlates with APD symptom counts about the same as it does with APD diagnoses. For example, in a sample of 306 male offenders Hemphill and Hare (unpublished data) found that APD symptom counts were correlated .65 with PCL-R Total scores, .44 with Factor 1 scores, and .68 with Factor 2 scores.

Recidivism and Violence

The significance of psychopathy as a risk factor for recidivism in general, and for violence in particular, is now well established. In their meta-analytic review, Salekin *et al.* (1996) noted that the ability of the PCL-R to predict violence was "unparalleled" and "unprecedented" in the literature on the assessment of dangerousness, but cautioned that this conclusion was based largely on work with White, Canadian, adult male offenders. This caveat is no longer valid, as the research reviewed in this paper attests. In a more recent meta-analysis of findings from a variety of populations, Hemphill *et al.* (1998) found that in the first year following release from custody psychopaths are three times more likely to re-offend, and four times more likely to violently re-offend, than are other offenders. Recently, the predictive association between the PCL-R and violent re-offending was replicated with a sample of 1197 (930 White, 267 African–American) male offenders in Wisconsin (Hemphill, Newman, & Hare, manuscript in preparation). Within seven years, 33%, 16%, and 8% of offenders with high, medium, and low PCL-R scores had violently recidivated, a pattern that was much the same for African–American as for White offenders.[3]

Although the prevalence of psychopathy is relatively low in forensic psychiatric populations, the PCL-R is as much a risk factor for recidivism and violence in forensic patients as it is in prison populations (Rice & Harris, 1992; Wintrup, Coles, Hart, & Webster, 1994). The PCL:SV is predictive of institutional aggression and violence in American forensic psychiatric hospitals (Hill, Rogers, & Bickford, 1996; Heilbrun *et al.*, 1998). The PCL:SV also predicts violence following release from civil psychiatric facilities, both in Canada (Douglas, Ogloff, & Nicholls, 1997) and in the United States (Steadman *et al.*, 2000). The report by Steadman *et al.* (2000) is particularly significant. It describes the results of the MacArthur Foundation's Violence Risk Assessment Study, in which 134 potential predictors of violence were evaluated in 939 patients over a 20-week period following discharge from a civil psychiatric facility. The single best predictor was the PCL:SV. Silver, Mulvey, & Monahan (1999) used a sub-sample of 293 of these patients to investigate the impact that neighborhood factors have on individual risk factors for violence in discharged patients. Again, the single best predictor of violence was the PCL:SV; the odds that a patient with a PCL:SV score of 13 or more (out of a possible score of 24) would commit a violent act were 5.3 times higher than were the odds that a patient with a score below 13 would commit such an act. Although patients discharged into neighborhoods with "concentrated poverty" generally were at higher risk for violence than were those discharged into neighborhoods with less poverty, the odds ratio for psychopathy associated with violence changed very little (from 5.3 to 4.8) when concentrated poverty was added to the equation.

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[3] The recidivism rates obtained in the Wisconsin sample were lower than those typically obtained with samples of offenders in Canada, England, and Sweden. The reason may be that the offenders in the Wisconsin sample were from state prisons. If they left the state in the post-release period it was difficult to track them, and they effectively were lost from the analysis. On the other hand, most of Canadian offenders were released from federal prisons, and it was relatively easy (as it is in England and Sweden) to obtain their post-release records from a central federal registry. This may help to explain why a disproportionate amount of the recidivism work in North America is conducted in Canada.

Relatively little research has been conducted on psychopathy in female and adolescent offenders. However, the available data are consistent with those from the adult male literature. Thus, the recidivism rates of female psychopathic offenders (as defined by the PCL-R) are higher than are those of other female offenders (Hemphill, Strachan, & Hare, manuscript in preparation; Salekin *et al.*, 1998). Adolescent psychopaths are at higher risk for institutional infractions (Edens, Poythress, & Lilienfeld, 1999) and for recidivism and violence (Brandt *et al.*, 1997; Forth & Burke, 1998; Gretton *et al.*, manuscript in preparation, in press; Toupin *et al.*, 1996; also see Forth *et al.*, in press) than are other adolescent offenders.

Sexual Offending

The prevalence of psychopathy differs among various types of sex offender (e.g., Brown & Forth, 1997; Miller, Geddings, Levenston, and Patrick, 1994; Porter *et al.*, 2000; Quinsey, Rice, & Harris, 1995). In general, PCL-R scores and base rates for psychopathy are much lower among child molesters than among rapists or ''mixed'' offenders. For example, Porter *et al.* (2000) found that the percentage of each type of sex offender with a PCL-R score of 30 or above was as follows: extra-familial molesters, 6.3; incest offenders, 10.8; mixed molesters, 6.3; rapists, 35.9; mixed rapists/molesters, 64. The offenses of psychopathic sex offenders are likely to be more violent or sadistic than are those of other sex offenders (Barbaree, Seto, Serin, Amos, & Preston, 1994; Brown & Forth, 1997; Firestone, Bradford, Greenberg, & Larose, 1998; Miller *et al.*, 1994; Serin, Malcolm, Khanna, & Barbaree, 1994). In extreme cases—for example, among serial killers—comorbidity of psychopathy and sadistic personality appears to be very high (Hare *et al.*, 1999; Stone, 1998).

The joint presence of psychopathy and deviant sexual arousal appears to be particularly problematic among adult and adolescent sex offenders. Rice and Harris (1997) reported that high PCL-R scores were strongly predictive of violent recidivism, and that sexual re-offending was predicted by a combination of high PCL-R scores and phallometric evidence of deviant sexual arousal, defined as a preference for deviant stimuli, such as children, rape cues, or nonsexual violence cues. Serin, Mailloux, and Malcolm (in press) reported that this combination of high PCL-R scores and deviant sexual arousal predicted general recidivism in adult sex offenders; no results were reported for sexual or other recidivism. Gretton *et al.* (in press) found that the combination of high PCL:YV scores and deviant sexual arousal was strongly related to general and to violent (including sexual) recidivism, but not to sexual recidivism in particular.

Treatment Outcome

There is little convincing scientific evidence that psychopaths respond favorably to treatment and intervention (see Dolan & Coid, 1993; Hare, 1998c; Lösel, 1998; Suedfeld & Landon, 1978; Wong & Hare, in press). This does not mean that their attitudes and behaviors are immutable, only that there have been no methodologically sound treatment or ''resocialization'' programs that have been

shown to work with psychopaths. There is some evidence that some treatment programs actually may make psychopathic offenders worse, as reflected in post-release rates of violent re-offending (Rice, Harris, & Cormier, 1992; also see Quinsey *et al.*, 1998). One explanation for this curious finding may be that group therapy and insight-oriented programs help psychopaths to develop better ways of manipulating, deceiving, and using people, including staff, but do little to help them to understand themselves. As a consequence, following release into the community they may be more likely than untreated psychopaths to continue to place themselves in situations where the potential for violence is high. An additional possibility is that psychopaths manipulate staff into thinking that they have made good progress in therapy and therefore they are good candidates for early release. Seto and Barbaree (1999) found that sex offenders re-offended at a very high rate if they had relatively high PCL-R scores *and* if their therapists thought they had made good therapeutic progress, defined by ratings in changes in the offender's expression of empathy for his victims, understanding of his offense cycle, and the quality of his relapse-prevention plans.

We must also consider the possibility that some treatment programs "make psychopaths worse" because they are poorly conceptualized and administered. Presumably, a program that is designed for psychopaths and that includes the most effective procedures derived from the extensive literature on "what works" for other high-risk offenders (e.g., Gendreau, 1996; Lösel, 1998) would, at the very least, not exacerbate the behavior of psychopaths. Guidelines for such a program have been described in detail by Wong & Hare (in press), both of whom are part of an Advisory Panel (headed by D. Thornton) for the development of specialized treatment programs for use in the English Prison Service.

PREDICTIVE VALIDITY: SWEDEN

There has been a considerable amount of research with the PCL-R and PCL:SV in Sweden in the past five years.[4] Thus far, most of the research has been based on retrospective analyses of file information and post-release data of violent and sexual offenders referred by the courts in the late 1980s for pre-sentence forensic psychiatric evaluations. The file data and psychiatric reports to the courts are detailed and extensive, and copies are kept in a national archive.

Several studies have determined that the quality of this archival information is high, permitting the collection of highly reliable retrospective data on a number of relevant background variables and risk factors (Långström *et al.*, 1999) and on the PCL-R (Grann *et al.*, 1998). In the latter study, a comparison of archival PCL-R ratings with PCL-R ratings based on interview and file data yielded an ICC of .88, with a file-based PCL-R score of 26 being equivalent to a score of 30 derived from interview plus file ratings. In the analyses reported below, psychopaths and nonpsychopaths were defined by a PCL-R score of 26 or more, or less than 26, respectively, unless otherwise indicated. In all cases, the file-based ratings

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[4] Information on translations of the PCL-R and PCL:SV into other languages, including Danish, French, German, Italian, Portuguese, Spanish and Swedish, can be obtained from Multi-Health Systems. E-mail address: monika.v@mhs.com

were conducted blind with respect to post-release outcomes, which consisted of details of violent crimes contained in official registers (Grann *et al.*, 1998). The follow-up period averaged about four years.

To date, the sample consists of 658 violent and sexual offenders, almost all of whom had been sentenced to prison, a forensic psychiatric facility, or put on probation. Most of the offenders were personality disordered (352) or schizophrenic (141). The mean post-release follow-up time was 44.23 months (SD = 27.38 months). The results of separate analyses of the data from personality disordered offenders and for psychotic (mostly schizophrenic) offenders are described below.

Personality Disordered Offenders

Grann, Långström, Tengström, & Kullgren (1999) found that among 352 personality disordered offenders (mean PCL-R score = 20.7, SD = 8.5) the risk for violent recidivism during the follow-up period was about 55% for psychopaths and about 25% for nonpsychopaths, with an odds ratio of 2.54. This odds ratio did not decrease significantly even after taking into account other potential risk factors, including substance abuse, conduct disorder symptoms, age at index offense, and previous violent convictions. The effect of psychopathy was even more pronounced when the offenders were divided into three groups on the basis of their PCL-R scores. Thus, the violent reconviction rate was approximately 65%, 48%, and 22%, respectively, for those with PCL-R scores above 32, between 22 and 32, and less than 22. These results held whether or not the offenders were born in Sweden. Grann *et al.* (1999) also performed an ROC analysis of the PCL-R and violent recidivism. The area under the curve (AUC) represents the probability that a violent patient will have a higher PCL-R score than will a nonviolent patient. The AUC was .67 within 6 months, .71 within 1 year, and .70 within 5 years following release.

Forensic Psychiatric Patients

The association between psychopathy and violence also is evident among forensic psychiatric patients, all with a history of violence. Tengström, Grann, Långström, & Kullgren (2000) started with a sample of 202 violent psychotic offenders, most of whom were schizophrenics, with a mean PCL-R score of 18.2 (SD = 7.5). Some offenders were excluded from the sample because of emigration, deportation, or death following release. Of the remaining 141 offenders, those with a PCL-R score of 26 or above (22% of the sample) had a violent reconviction rate of 66%, whereas those with a PCL-R score of 25 or below had a reconviction rate of 18%, with an odds ratio of 4.12. As with personality disordered offenders (Grann *et al.*, 1999), inclusion of other potential risk factors did not improve on the predictive power of the PCL-R. Moreover, PCL-R Factor 1 (interpersonal/affective features) was as predictive of violence as was Factor 2 (socially deviant lifestyle). An additional finding of note was a sharp increase in the likelihood of a violent offense shown by patients with a PCL-R score of 26 or above at about 48 months post-

release. Apparently this coincided with the end of intensive community super-vision, suggesting that tight supervision is a protective factor for psychotic offenders with many psychopathic features. An ROC analysis obtained an AUC of .75 for the PCL-R and violent recidivism within five years.

Sex Offenders and Spousal Assaulters

Additional analyses of the sample of 658 offenders found that psychopathic spou-sal assaulters were more likely to repeat their offenses following release than were nonpsychopathic assaulters (Grann & Wedin, 1999). Among young sex offenders, the PCL-R was strongly related to violent recidivism in general but not to sexual recidivism in particular (Långström & Grann, 2000). Similar results were obtained with the Canadian sample of adolescent sex offenders (Gretton *et al.*, in press), described above.

The Entire Sample of Offenders

For the entire sample of 658 violent offenders, there was a strong association between psychopathy and violent recidivism. Approximately 51% of the psycho-paths and 22% of the nonpsychopaths were reconvicted of a violent crime, with an odds ratio of 3.66 (95% CI: 2.42–5.53).

The research provides strong support for the generalizability of the predictive validity of the PCL-R. Grann *et al.* (1999) have suggested that the Swedish findings may actually underestimate the predictive importance of the PCL-R, given that the criterion variable was formal reconviction for a violent offense, rather than the more liberal criterion variables (e.g., re-arrests, re-hospitalizations, charges) used in some North American studies. They also commented that the violent reconviction rate for their psychopathic offenders would likely have been much higher had many of them not been arrested for nonviolent crimes soon after their release into the community. The same reasoning can be applied to most other studies of violent recidivism in psychopaths.

Psychopathy and the HCR-20

Several Swedish studies have used the HCR-20 to investigate the risk factors associated with institutional and post-release violence in long-term offenders. Belfrage, Fransson, & Strand (2000) administered the HCL-20, which includes the PCL:SV, to 41 high-risk inmates with a history of violence. Most of the inmates (30 of 41) had a PCL:SV score above 18 (out of 24), the cutoff typically used for a diagnosis of psychopathy. In a follow-up period that averaged about eight months, eight inmates committed violent acts, including assaults of staff and other inmates, severe damage to cells, and severe threats to staff. The mean PCL:SV score for those who committed a violent act was significantly higher (22.6, SD = 1.5) than it was for those who did not commit such an act (18.0, SD = 5.3). The HCR-20 total score was considerably higher for those who com-

mitted a violent act ($M = 33.4$, SD $= 3.2$) than for those who did not commit a violent act ($M = 24.6$, SD $= 7.2$).

In a related study, Strand, Belfrage, Fransson, & Levander (1999) found that both PCL:SV and the HCR-20 differentiated between discharged forensic psychiatric patients who committed a new violent offense ($n = 22$) and those who did not ($n = 18$). ROC analyses indicated that the predictive power of the PCL:SV by itself was very good, with an AUC of .70. However, when used along with the rest of the items in the HCR-20, the AUC increased to .80.

Dernevik, Johansson, & Grann (manuscript under review) used the PCL:SV and the HCR-20 in a prospective study of aggression by forensic patients during treatment in hospital and following release into the community. The PCL:SV predicted various types of verbal and physical aggression in the hospital wards (AUC = .60 to .68), as well as post-release violent reconvictions (AUC = .71). The addition of the HCR-20 produced a significant increase in predictive validity.

Tengström (in press) compared the ability of the HCR-20 historical items (H-10) and a modification of the VRAG (each of which contained the PCL-R) to predict violent recidivism in a sample of 106 violent offenders with schizophrenia. During the follow-up period, which averaged 86 months, the AUC for the prediction of violent recidivism was .79 for the PCL-R alone, .76 for the H-10, and .68 for the VRAG. With the PCL-R removed, the AUC for the H-10 and VRAG decreased to .74 and .62, respectively.

It is worth noting here that in most of these Swedish studies, the PCL-R (or PCL:SV) predicted violence even among offenders who had a history of violence.

PREDICTIVE VALIDITY: ENGLAND

The English Prison Service has adopted the PCL-R for use as part of the induction assessments for all long-term prisoners (those serving over 5 years). Steps also are under way to obtain PCL-R assessments for all offenders who begin sex offender treatment programs or who participate in several other cognitive–behavioral programs used nationally by the Prison Service. It is possible that in the future offenders with a high PCL-R score will be excluded from such programs, and that they will be transferred to facilities and programs specially designed for psychopaths. It is important, therefore, to establish the prevalence of psychopathy in the English prison population, and to determine whether the PCL-R predicts reconviction, violent reconviction, and institutional misconduct as well as it does in North American jurisdictions. Data on these issues are available for a large sample of prisoners and, with the cooperation and permission of the Prison Service, are presented here for the first time.

The Sample

The sample was obtained as part of a larger study of the criminogenic needs of offenders, and is representative of the entire English prison system. It consists of 728 adult male offenders drawn from seven different prisons and from a national database of new admissions. In each case, the PCL-R was part of a battery of

psychological assessments administered shortly after the start of the prison sentence by prison psychologists trained (by R. D. Hare and A. E. Forth) in the use of the PCL-R.

The age of the offenders in the sample varied between 18 and 64 years, with a mean age of 30.4. Their sentences ranged from one month to life, with an average of 3.2 years; 4% were serving life sentences. The index offense (most serious offense for which an offender had been convicted at last court appearance) included murder (3%), sexual offenses (7%), other violent offenses (21%), burglary (13%), robbery (14%), theft (11%), drug offenses (7%), and other indictable offenses (24%). Most of the offenders (78%) were White, 14% were Black, 6% were Asian, and 2% were of other racial origin. At the time of arrest, 60% were single, 25% were married or cohabiting, and 14% were divorced or separated.

The mean PCL-R Total score for the sample was 16.5 (SD = 7.8). The mean score for Factor 1 and 2 was 5.8 (SD = 3.7) and 8.3 (SD = 4.5), respectively. These scores are lower than those typically obtained in North American samples, but are in line with those obtained with a representative sample of Scottish prisoners. IRT analyses of the English data (Cooke & Michie, personal communication, 26 April, 2000) indicate that a PCL-R score of 25 in England, as in Scotland, appears to reflect the same level of the latent trait of psychopathy as does a score of 30 in North America. About 4.5% of the current sample had a PCL-R score of 30 or more, whereas about 13% had a score of 25 or more. PCL-R scores were not significantly related to age or race.

Security Level and the PCL-R

The security level of the prison to which English offenders are assigned is based on evaluations of risk and other security needs conducted soon after reception. The percentage of the sample and the mean PCL-R score of offenders assigned to different security levels was, respectively, as follows: high security, 12%, 19.8 (SD = 9.4); medium security, 18%, 16.6 (SD = 7.3); low security, 25%, 15.8 (SD = 7.3); open prisons, 7%, 13.8 (SD = 6.4); local prisons, 30%, 15.7 (SD = 7.4). In addition, 9% of the sample were in institutions for young offenders under 21 years of age. Their mean PCL-R score was 16.7 (SD = 8.5).

Type of Index Offense and the PCL-R

The mean PCL-R score for offenders serving a sentence for different types of index offense was as follows: violent offenses, 19.5 (SD = 8.2); sexual offenses, 13.1 (SD = 8.6); theft and fraud, 16.5 (SD = 7.4); drug offenses, 11.9 (SD = 6.9); all other offenses, 15.6 (SD = 8.6). This pattern of PCL-R scores is consistent with the North American experience.

Institutional Infractions

Reports of institutional misconduct and infractions that occurred after PCL-R assessments had been made were available for 652 offenders. The PCL-R score

was significantly correlated ($p < .001$ in each case) with total number of reports for prison misconduct ($r = .31$), assaults on staff ($r = .24$), assaults on inmates ($r = .15$), and property damage ($r = .18$). About 46% of prisoners in the sample had at least one report for misconduct. Their mean PCL-R score was significantly higher (19.2, SD = 7.6) than was the PCL-R score for those with no institutional misconduct (14.3, SD = 7.2), $t(650) = 8.5$, $p < .001$. The mean total PCL-R score for offenders with at least one report for assault was 21.0 (SD = 8.1), significantly higher than the mean PCL-R score of 13.6 (SD = 7.6) for those with no reports of assault, $t(650) = 8.6$, $p < .001$. Most (75%) of the offenders with a PCL-R score of 30 or more had at least one report for an institutional misconduct, while 42% had at least one report for assault. In contrast, 44% of those with a PCL-R score less than 30 had at least one report for an institutional misconduct, and only 16.4% had a report for assault.

A logistic regression analysis revealed that number of previous convictions and age were better predictors of the total number of reports for all types of misconduct than were PCL-R scores. However, PCL-R scores were the best predictor of reports for assault, even when other factors such as sentence length, number of previous convictions, age, and offense type had been taken into account. These latter findings are similar to those obtained in North American studies (e.g., Hill *et al.*, 1996; Heilbrun *et al.*, 1998).

Program Participation

Research in North America (Ogloff, Wong, & Greenwood, 1990) and England (Hobson, Shine, & Roberts, 2000) indicates that psychopaths are less likely than other offenders to participate actively and conscientiously in prison treatment programs. Data on these issues were available for 682 offenders in the present sample, 101 with a PCL-R score of at least 25 (referred to as the High PCL-R group), and 580 with a PCL-R score of less than 25 (the Low PCL-R group). The percentage of offenders in the High and Low PCL-R groups, respectively, who engaged in various prison activities was as follows: completion of education course, 21 and 41; completion of vocational training, 14 and 34; employed for more than half of the sentence, 9 and 28; attended the Offending Behaviour program, 53 and 46; fired from a prison job, 35 and 22; and put a segregation any time during the sentence, 44 and 7. Offenders in the High PCL-R group were as likely as those in the Low PCL-R group to attend a treatment program, but were less likely to complete educational and vocational programs or to work in prison, and more likely to be fired from a prison job or to be put into segregation. It was not possible to determine whether those in the High PCL-R group were more likely than other offenders to complete or drop out of treatment programs, most of which were short term and involved anger management and social skills training.

Reconvictions

Subsequent to their PCL-R assessment, 278 offenders were released into the community, 55 in the High PCL-R group, and 223 in the Low PCL-R group.

Within the follow-up period of two years, 48% of those released were convicted of at least one offense. For general offenses, the reconviction rate was 81.8% for the High PCL-R group and 39.9% for the Low PCL-R group, a highly significant difference, $\chi^2(1) = 31.0$, $p < .001$. The reconviction rate for violent offenses was 38.2% for the High PCL-R group but only 2.7% for the Low PCL-R group, $\chi^2(1) = 63.4$, $p < .001$. These results are depicted in Figure 1.

In order to determine how the PCL-R compared with other established predictors of reconviction, a stepwise logistic regression analysis was performed, with reconviction as the outcome measure. The predictor variables, besides the PCL-R, were scores on the Level of Supervision Inventory—Revised (LSI-R; Andrews & Bonta, 1995), which measures risk and need factors relevant to general offending, and the Offender Group Reconviction Scale (OGRS). The OGRS is a statistical risk scale that has been used in the English criminal justice system since 1996. It measures actuarial risk factors, including criminal history and age, and provides an estimate of the probability that an offender will be reconvicted at least once within 2 years of discharge from custody or from the start of a community sentence for any type of offense.

In the analysis of reconvictions for general offenses, the LSI-R and OGRS variables were entered first, followed by the PCL-R. The addition of the PCL-R resulted in a small but significant ($p < .02$) improvement in prediction; the percentage of cases correctly classified increased from 78 to 81%. The contribution of the PCL-R to the prediction of violent reconvictions was more impressive. Thus, neither the LSI-R nor the OGRS was significantly associated with violent outcome. The PCL-R was the only variable to enter the regression analysis for violence, with 92% of the cases correctly classified.

It is clear that in England a high PCL-R score is as much a risk factor for recidivism, particularly for violence, as it is in North America. In addition, PCL-R Factor 1 (interpersonal/affective features) was at least as good as, and sometimes better than, Factor 2 (social deviance features) as a predictor of recidivism and
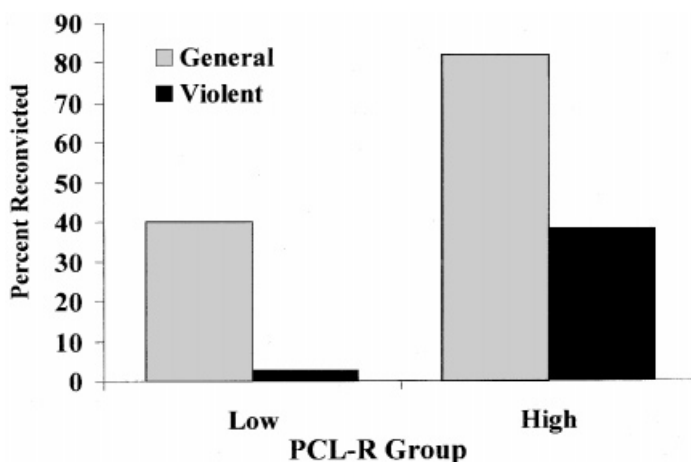

Figure 1. Two-year general and violent reconviction rates for 268 English offenders with Low and High PCL-R scores. Low PCL-R = score below 25. High PCL-R = score of 25 or more. Data Courtesy of the English Prison Service

violence. Similar results were obtained in the analyses of treatment outcome, presented in the next section. We point this out because it is a common, though erroneous, belief that Factor 2 usually is a stronger risk factor than is Factor 1. The relative predictive power of the two factors depends on the population involved, the context, the range of scores on each factor, and on the application of appropriate tests to determine whether apparent differences are in fact statistically significant (see Hemphill *et al.*, 1998).

Reconvictions Following Treatment

As indicated in a previous section, psychopaths do not respond well to the typical prison treatment programs offered in North America. The most common treatments offered by the English Prison Service are relatively short-term anger management and social skills training programs. The 24-month reconviction rates for the 278 offenders released into the community were determined for those who took part in at least one of these programs, and for those who did not.

After controlling for age and criminal history it appeared that treatment had little effect on the reconviction rates of offenders in the High and Low PCL-R groups. However, the picture is somewhat different when the offenders are divided on the basis of their PCL-R Factor 1 scores, a measure of the core interpersonal/affective features of psychopathy. Treatment outcome as a function of High and Low Factor 1 scores (cutoff of 9) is depicted in Figure 2. Treatment had no effect on offenders in the Low Factor 1 group, whereas treatment had a strong effect on offenders in the High Factor 1 group, but in the wrong direction, assuming that treatment is supposed to reduce risk for recidivism. Thus, the reconviction rate for High Factor 1 offenders was 58.8% if they *had not* been treated, but 85.7% if they *had* been treated ($p < .01$).

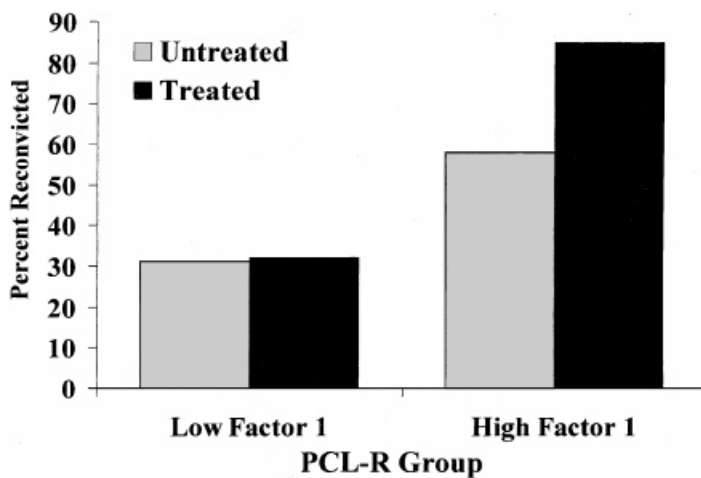Rice *et al.* (1992) found that treatment of offenders with high PCL-R scores

Figure 2. Two-year general reconviction rates for 268 English offenders with Low and High PCL-R Factor 1 scores as a function of participation in short-term treatment and social skills programs. Data Courtesy of the English Prison Service

increased the post-release violent conviction rate. They did not subdivide the offenders on the basis of their PCL-R Factor 1 scores, so it is not possible to determine the influence of Factor 1 on their treatment outcome findings. However, research by Hobson *et al.* (2000), described below, indicates that it is the interpersonal and affective (Factor 1) components of psychopathy that are strongly predictive of negative or disruptive treatment-related attitudes and behaviors.

Offenders in the English Prison Service also may attend educational and vocational training programs. The reconviction rate for offenders with a PCL-R score below 25 was 32% if they had taken part in a training program, and 47% if they had not. For those with a PCL-R score of 25 or more, the reconviction rate was about the same for those who had taken part in a training program (82%) as it was for those who had not (80%). The results were different when the offenders were divided on the basis of their PCL-R Factor 1 scores. As Figure 3 shows, offenders with a low Factor 1 score derived considerable benefit from these programs, whereas those with a high Factor 1 were reconvicted at a higher rate if they had taken one of these programs than if they had not. It appears that prison treatment or vocational training served to increase the reconviction rates of offenders who were particularly callous, glib, deceptive, grandiose, manipulative, and remorseless, as reflected in high Factor 1 scores.

If standard prison programs have no beneficial effect on psychopaths, at least with respect to re-offending, the question is, why? Some possibilities, offered in a previous section, were that psychopaths learn less about themselves than they do new ways of manipulating and deceiving others, and that they are able to convince therapists and staff that they have made good progress when in fact they have not. It is also possible that the short-term English programs described above were not as well conceived or as effectively administered as they might have been. In this respect, it is significant that these treatment programs had little effect on nonpsychopathic offenders. (In contrast, it is interesting that relatively straight-
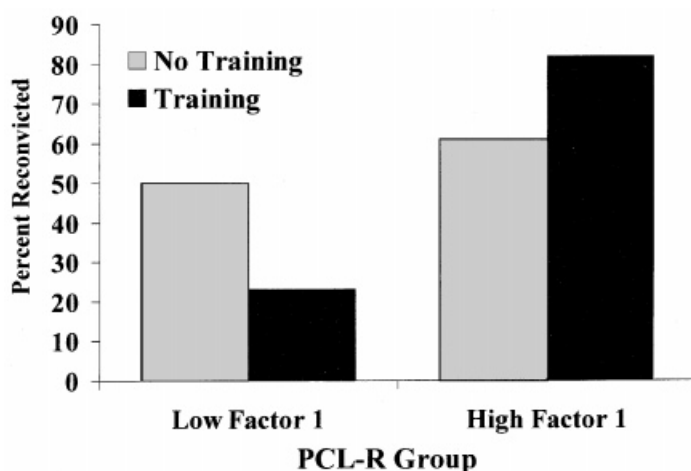

Figure 3. Two-year general reconviction rates for 268 English offenders with Low and High PCL-R Factor 1 scores as a function of participation in educational and vocational training programs. Data Courtesy of the English Prison Service

forward educational and vocational training seemed to have a beneficial effect on the recidivism rate of nonpsychopathic offenders.) The Joint Accreditation Panel of the English Prison Service recently has recommended that current treatment programs be replaced with accredited cognitive/social learning programs and therapeutic communities that are based on what is known about effective intervention strategies for offenders. Preliminary evidence indicates that these accredited programs, properly implemented and administered, may be as effective in reducing the recidivism rates of offenders as they are in North America (e.g., Gendreau, 1996). As yet, we do not know the effect of these programs on psychopaths, but it is likely that the effect will not be to make them worse.

The fact remains that psychopaths are, at best, difficult candidates for therapy. A recent English study indicates that part of the problem is the attitudes and behaviors displayed by psychopaths during treatment. Hobson *et al.* (2000) administered the PCL-R to 104 patients when they entered a forensic hospital for treatment in a well developed therapeutic community program. The mean PCL-R score of these patients, most of whom had a history of violence and were personality disordered, was 24.1 (SD = 6.6), considerably higher than the mean score of 16.5 obtained with the representative English Prison Service sample. Their behavior during treatment sessions and while on the wards was evaluated with specially designed checklists. High scores on the PCL-R were strongly predictive of disruptive behaviors during treatment sessions and on the wards 3 months and 6 months following admission to the hospital. The effect was entirely due to the interpersonal and affective features (Factor 1 of the PCL-R) of psychopathy. The results clearly indicated that the psychopaths manipulated the system to satisfy their own need for power, control, and prestige. They played ''head games'' with other inmates and staff, continually tested the boundaries and looked for people and things to exploit, and showed no genuine interest in changing their own attitudes and behavior. Nevertheless, they managed to con some staff into thinking that good progress had been made. Subsequent research will investigate the association between the treatment processes and post-release behavior.

PREDICTIVE VALIDITY: OTHER COUNTRIES

Researchers and clinicians in many other countries have adopted the use of the PCL-R or PCL:SV for the assessment of psychopathy. Cooke (1998) described the comparative psychometric properties of the PCL-R in samples from Finland, Belgium, Sweden, Germany, Portugal, Spain, Norway, Denmark, Scotland, and England. In most cases, the samples are still relatively small or the data do not address the issue of predictive validity. Nevertheless, the experiences of researchers in several European countries are encouraging, and some preliminary findings are summarized here. Personal communications were to the senior author.

Germany

The following information and data were provided by Roland Freese (e-mail address: Roland.Freese@Psych-Haina.de), Haina Forensic Psychiatric Hospital,

Haina, Germany, (personal communication, 21 February, 2000). The PCL:SV has been used in German forensic psychiatric facilities since 1996 (Freese, Müller-Isberner, & Jöckel, 1996). Several studies have been completed at Haina, a multi-level institution with 300 inpatients and an outpatient unit serving 140 patients, most of whom have committed violent index crimes. The PCL:SV was translated into German and scored for a small cohort of 100 inpatients and 39 outpatients. The psychometric data, including interrater reliability and factor structure, were comparable to the original Canadian data (Freese, 1998). The PCL:SV predicted in-hospital incidents among patients with major mental disorders, but the HCR-20 clinical items worked better. By contrast, among patients with personality disorders the PCL:SV predicted better than did the HCR-20 or any of its components. The higher the PCL:SV score the greater the number and severity of in-hospital incidents.

An additional study was conducted with 283 inpatients who were representative of a German forensic inpatient population with respect to age, sex, diagnoses, and index offenses. Patients with high PCL:SV scores were more likely than other patients to require high levels of in-hospital security, to be re-hospitalized, to spend time in a seclusion room, to try to hurt themselves, and to insult and threaten others, violate rules, and commit thefts and fraud. Until recently, patients with high PCL:SV scores also were more likely than other patients to be violent inside and outside of the hospital, and to escape from the hospital. Today, after fundamental changes in hospital politics and the introduction of special management strategies for patients with high PCL:SV scores, hospital violence and escapes have been reduced dramatically. When administered at admission, the PCL:SV has proven to be useful in making recommendations to the court on placement, and for assessing treatability, in-hospital security needs, and risk after discharge (Freese, 1999, 2000).

Preliminary results from a recent study of a sample of 120 outpatients with schizophrenia, affective psychosis, or personality disorder revealed that every patient who failed under community supervision had a PCL:SV score above 16. Patients with a high PCL:SV score required more intensive community supervision in order to prevent a relapse than did those with lower scores (Freese, personal communication, 20 July, 2000). These results are similar to those reported by Tengström *et al.* (2000), who found that tight post-release supervision may be a protective factor for psychotic patients with a high PCL-R score.

Belgium

The following information and data were provided by Thierry H. Pham (e-mail address: pham@crim.ucl.ac.be), Catholic University of Louvain, Louvain-la-Neuve (personal communication, 22 July, 2000). A French version of the PCL-R was administered to 90 offenders (58 inmates of a high-security prison and 32 patients of a security hospital) prior to their release into the community. The follow-up period averaged almost three years. Survival analysis indicated that the PCL-R was a significant predictor of general and violent re-offending. The failure rate (being returned to prison) within two years for offenders with high, medium, and low PCL-R scores was, respectively, 44%, 21%, and 11% for general offenses,

and 33%, 7%, and 3% for violent offenses. ROC analysis yielded an AUC of .69 for general re-offending and .75 for violent re-offending.

Previous research with offenders in Belgium indicated that the psychometric properties of the PCL-R were sound (Pham, 1998), and that its neurobiological correlates were similar to those found with North American samples of offenders (Pham *et al.*, 2000; Pham, Vanderstukken, Philippot, & Vanderlinden, 1999).

Spain

Moltó, Poy, & Torrubia (2000) administered a Spanish translation of the PCL-R to two random samples of offenders, 117 in total. The psychometric properties of the PCL-R, including its reliability and factor structure, as well as its psychological and behavioral correlates and the distribution of scores ($M = 22.4$, SD = 7.5) were comparable to those of North American samples. Offenders with high PCL-R scores had significantly more institutional infractions than did other offenders. They also were more likely to violate the terms of a conditional temporary absence (50.0% violation rate) than were those with medium (23.4%) or low (8.3%) PCL-R scores.

Portugal

The following information and data were provided by Rui Abrunhosa Gonçalves (e-mail address: rabrunhosa@icp.uminho.pt), University of Minho, Braga (also see Gonçalves, unpublished manuscript). A Portuguese translation of the PCL-R was administered to a random sample of 76 male prisoners. Its psychometric properties and distribution of scores ($M = 22.9$, SD = 7.5) were much the same as in North American samples (see Gonçalves, 1999). High PCL-R scores were associated with various measures of negative or maladaptive prison behaviors, including frequent job changes, many dismissals from prison jobs for misconduct, and many disciplinary reports.

CONCLUSIONS

Although most of the research with the PCL-R and its derivatives has been conducted in North America, there is increasing evidence for their cross-cultural generalizability, as well as for the construct they measure (Cooke, 1998; Cooke & Michie, 1999a). The psychometric properties of the PCL-R and PCL:SV, as well as their psychological and behavioral correlates, appear to be much the same in one country as in another. Of particular interest, given the purpose of this article, is the compelling evidence from North America, Sweden, and England concerning the value of the PCL-R as a primary risk factor for recidivism and violence. In addition, the ability of the PCL-R to predict response to treatment in both North America and England is striking, and has led to the formation by the English Prison Service of an Advisory Panel charged with developing new treatment programs for psychopathic offenders. David Thornton heads the Panel.

Cross-cultural research with the PCL-R is still in its infancy, and a great deal remains to be done, not only on its predictive validity but also on all aspects of its construct validity. Early findings have been encouraging, but many more samples in different countries and contexts are needed in order to determine the extent to which the PCL-R can facilitate the assessment of risk for behaviors relevant to the mental and criminal justice systems in different jurisdictions and with a variety of racial, ethnic, and cultural populations.

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